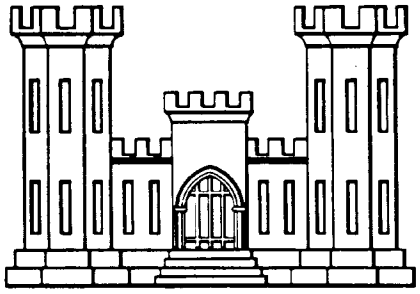
ETL 1110-2-231
30 Mar 1979

LOST CREEK LAKE

ROGUE RIVER, OREGON

INITIAL FILLING PLAN



U. S. ARMY ENGINEER DISTRICT, PORTLAND

CORPS OF ENGINEERS

PORTLAND, OREGON

OCTOBER 1976

INCLOSURE NO. 1

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO
ATTENTION OF:

ETL 1110-2-231
30 Mar 1979

1 October 1976

OPERATION ORDER

LOST CREEK LAKE POOL RAISE

1. Purpose: This operation order provides the basic plan for raising Lost Creek Lake. It assigns duties for various Corps elements and outlines co-operative efforts needed with concerned outside agencies.

2. Principles Underlying the Pool Raise Plan: The plan of pool raise is based on the following considerations. There are three critical, inter-related elements of the closure which, to some extent, make conflicting demands on the operation. Those are (a) lowering the stoplog, (b) raising the pool on the embankment dam, and (c) constructing the tunnel plug.

(a) The concerns of lowering the stoplog are as follows: Low river flows at closure increase the chances of making a successful closure, whereas high flows will minimize the magnitude of fishery losses downstream. If the river flow is 1,000 c.f.s. at closure, the depth of water will be about 6 feet. If it is 2,000 c.f.s. the depth will be about 10 feet. A 2,000 second-feet flow or more is desirable for the fish, but that flow increases the hazard of making a successful closure. If the stoplog does not go all the way down, yet cannot be lifted out for another try (either from jamming or lack of crane capacity to overcome friction and downpull), there is probably only one option left--dumping rock upstream of the portal to create an embankment-type closure. Besides possible delays, etc. which might result, the fish run downstream could be destroyed because the life-sustaining flow through the stoplog would be cut off by the fill. Our solution is to make closure during the beginning of a rainstorm when the river flow is between 1,000 and 1,500 c.f.s. and is rising, with every indication that a flow of at least 2,000 c.f.s. of reservoir

inflow will be reached within a matter of a very few hours. (Pumping water through the regulating outlet is not practicable because of the large flow required--700 c.f.s.--and the large head involved. We have, therefore, decided to do everything possible to assure a successful closure with the stoplog.) To mitigate for reducing the downward river flows below the minimum 700 c.f.s. recommended by the fish agencies at closure, critical salmon spawning areas will be sprayed with water until an adequate flow is provided through the bypass gate in the stoplog. To minimize the pumping time required and any other adverse effects, the closure will be made under favorable weather conditions.

(b) The criticality of raising the pool stems from the fact that severe rainstorms can cause an uncontrollable rising or unlowerable level of the reservoir surface during periods when the reverse would be demanded either for proper monitoring of the dam on the first filling or for the safety of the structure itself if unanticipated seepage occurs. Our solution to this problem is to divide the filling into two parts--that below a certain elevation where practically no downstream hazard exists and that above the elevation where loads, pressures, and volume of reservoir storage become significant. The first part of the filling, above the regulating outlet, would be done with a constant 1,000 c.f.s. flow being discharged through the regulating outlet. That is the minimum needed for fish and would provide minimum interference for the construction of the diversion tunnel plug which is covered in item (c). At the same time, whatever rate of filling occurred from the rainfall received probably would not create a safety hazard. If at any time, however, during the first part of the filling any serious unanticipated seepage of the dam or foundation occurred, the outlet flow would be increased to lower the reservoir as much as possible and the emergency procedure would be activated. The second part of the filling would be based on controlling as much as possible the rate of rise of the reservoir to provide optimum conditions for monitoring the filling. Should reservoir inflow exceed the ability of the outlet to regulate the flow, the water surface would rise above the preplanned rule curve; however, it would be lowered to that preplanned curve as soon as

possible by full use of the regulating outlet. Once back on the rule curve, the curve would be followed until another unregulatable inflow occurred. Should at any time any serious unanticipated seepage be observed, the emergency procedures would be activated and the regulating outlet gate would be opened completely, if it were not already in that position.

It should be added that if the reservoir inflow is insufficient to reach the preplanned filling curve at any time, the preplanned filling curve would be translated horizontally as far as necessary to keep the actual reservoir elevation curve from being below the preplanned filling rule curve. If, however, the reservoir had previously been fully monitored to a higher elevation, that higher elevation could again be reached by filling as fast as possible if the inflow became sufficient to do so.

Finally, when the routine reservoir regulation curve is reached, that curve would supplant the preplanned filling rule curve for the remainder of the filling. However, the controls on reservoir rate rise and manner of regulating a flood would be the same as for the preplanned curve mentioned above. Monitoring will continue until full pool is reached. If not reached the first year, the special filling monitoring group would be deactivated at the highest reservoir elevation reached and reactivated in succeeding years, as necessary, to assure that the initial reservoir filling throughout the complete range of elevations has been monitored.

(c) The problem with the plug construction is that the higher the water surface in the reservoir the greater the hazard to the workmen inside the tunnel and the more the leakage that would have to be handled by the contractor. Yet the regulating outlet flows needed to keep the water surface down could interfere with the contractor's entry to the tunnel.

Our solution is to store as much water as possible during the early filling of the reservoir to minimize interference with the contractor, and construct the plug as fast as possible. Should the plug not be complete when the reservoir reaches the level between the adopted first and second filling stages, the contractor would have to interrupt his tunnel work every time large releases from the regulating outlet are required.

3. Scope: This Operation Order includes the following appendices:

a. Appendix A - Water Control Plan.

b. Appendix B - Project Surveillance.

c. Appendix C - Fish Egg Protection and Surveillance.

d. Appendix D - Contingency Plan.

e. Appendix E - Safety Plan.

f. Appendix F - Public Affairs.

g. Appendix G - Prefilling Inspection Team Recommendations.

h. Appendix H - Transportation and Communications.

4. Implementation: Placing this Operation Order into effect will be the responsibility of Mr. Robert Martin, Resident Engineer. He will keep the District Engineer advised as to progress, problems and actions being taken. All echelons will report to the Resident Engineer. Mr. Martin will be assisted by Mr. Vince Steinkamp. After the lake filling has been fully monitored to elevation 1751, the responsibility for the filling plan will transfer to the Project Engineer.

5. Preliminary Actions: The following actions must be taken prior to actual raising of the pool.

Operation Order, Lost Creek Lake Pool Raise - cont'd

a. Inspection Team recommendations have been completed.

b. Telephone lines and power lines have been removed from pool area below elevation 1751.

c. All necessary construction to be covered by pool is completed.

d. Roads leading into lake have been signed and barricaded as needed.

e. Fish egg sprinkler system has been checked out.

f. All other preliminary actions required by this operation order.

g. Advance press release issued on 8 October.

h. When conditions appear favorable for closure the following will be notified one day in advance of intended closure date if possible: (If conditions favorable for closure occur without advance warning, the one-day advance notice will not be given. Notification will be given as far in advance of closure as possible; however, at least 6 hours notice is required.)

(1) The Resident Engineer will notify the following:

(a) District Engineer

(b) Chief, Construction Division

(c) Local office of State Police

(d) County Sheriff

(e) Local State Highway Maintenance Office

(f) Pacific Power and Light

(g) Medford Office of U.S. Geological Survey

(h) Medford Office of U.S. Weather Service

(i) Mike Evenson, ODFW, Cole Rivers Hatchery

(2) Portland District Engineer will notify the North Pacific Division Engineer.

(3) Chief, Construction Division will notify the following:

(a) Chief, Engineering Division

(b) North Pacific Division Chief, Construction Division

(c) Public Affairs Office

(d) Chief, Project Operations

(4) Chief, Engineering Division will notify:

(a) North Pacific Division Chief, Engineering Division

(b) Chief, Foundations and Materials Branch

(c) Chief, Design Branch

(d) Chief, Planning Branch

(e) Rogue River Coordinator

(5) Chief, F&M Branch will notify:

(a) North Pacific Division Chief, GS and M Branch

(b) State Highway Engineering Department

(6) Rogue River Coordinator will notify private environmental and sportsmen groups.

(7) Mike Evenson will notify the fishery agencies.

6. Final Closure Actions: On day of closure the following actions must be taken:

a. Fish and Wildlife representatives' final approval for closure received.

b. District Engineer gives approval to proceed with closure.

c. Same notification as in paragraph 5h, regardless of whether the decision is to proceed or to reschedule.

Operation Order, Lost Creek Lake Pool Raise - cont'd

d. Fish egg sprinklers put into operation.

e. PP&L Big Butte Creek Works notified (6 hours in advance).

f. Contractor directed to lower stoplog.

h. Immediately notify District Engineer that stoplog is in place.

7. All District elements are directed to give maximum support to the pool filling operation.

Incls

HARVEY L. ARNOLD, JR.
Colonel, Corps of Engineers
District Engineer